

CHRISTINE HULT ■
RONDA CALLISTER ■ KIM SULLIVAN

Is There a Global Warming Toward Women in Academia?

P E R S P E C T I V E S

Substantially different types of universities are finding similar sources of dissatisfaction among their women faculty in the sciences and engineering

WHILE GLOBAL WARMING toward women in academia (in this case a desirable trend) may be occurring in some academic departments or institutions—most notably in community colleges—the same cannot be said for many colleges of Science, Engineering, and Technology (SET colleges). There, the climate for women is very chilly indeed. As Cathy Ann Trower reports in *Science* magazine (2001), 42 percent of full professors in two-year colleges are women; however, women comprise only 17 percent of the full professor ranks at doctoral-granting institutions. For SET colleges, the figures are even lower. “In 4-year colleges and universities,” Trower reports, “women SET (science, engineering and technology) faculty hold fewer high-ranking posts than men, are less likely to be full professors, and are more likely to be assistant professors” (1).

Even though there are increasing numbers of women graduates in the pipeline, the statistics for women’s representation at the higher ranks and in the SET colleges have been largely

unchanged for the past twenty years. The situation is no better in Europe. “Although women constitute more than half of the student population across Europe, they hold fewer than 10% of the top positions in the academic system” (Dwandre 2002, 278).

In the 1970s, Rosabeth Moss Kanter (1977) wrote about the adverse effects that can occur when women or minorities are tokens in their departments. Many subsequent studies also have found that when women represent less than 15–20 percent of a department they are more likely to feel the effects of gender stereotyping. More recently, Virginia Valian (1998) has developed cognitive analyses to explain the persistent inequalities in academia. She claims that both men and women operate under certain stereotypical gender schemas that affect our expectations of men’s and women’s roles. For example, Valian cites research showing that, after reviewing identical curricula vitae but with different names attached, men and women academics both consistently rate the women as less competent for an academic position than the men. Gender schemas go a long way toward explaining the subtle dynamics at work during recruitment and promotion on university campuses.

Other analyses have revealed additional aspects of chilly campus climates that help to account for women’s failure to thrive in academia (see Etzkowitz, Kemelgor, and Uzzi 2000). One of these is the “death by a thousand paper cuts”

CHRISTINE HULT is professor of English and associate dean of the College of Humanities, Arts, and Social Sciences, RONDA CALLISTER is associate professor of management and human resources, and KIM SULLIVAN is associate professor of biology, all at Utah State University. Their work was supported by a grant from the National Science Foundation: SBE-0244922.



**On our campus,
we chose to focus
on the SET colleges
because the warming
toward women faculty
appears to be
the slowest there**

phenomenon. Ingrained assumptions, practices, and behaviors, often based on gendered stereotypes, tend to chip away at women. In a Princeton study of women in science, for example, “nearly a quarter of the women said their colleagues engaged occasionally or frequently in ‘unprofessional’ behavior and excluded women from professional activities” (Lawler 2003, 33).

High pressure and low pressure systems

Gender schema as well as ingrained organizational assumptions, inappropriate behaviors, and stereotypes, often hidden in organizations, have long been part of the historic separation of spheres—the masculine sphere of paid work and the feminine sphere of domestic life. Gendered assumptions are most likely to affect the quality of work life and success for women faculty during interactions within their departments, particularly with colleagues but also with administrators. In today’s politically correct work environment blatant discrimination is not common, but gendered assumptions and stereotypes are often buried below the surface. For example, a male department chairperson deciding on merit raises may unconsciously

privilege a male colleague who is his family’s sole source of financial support.

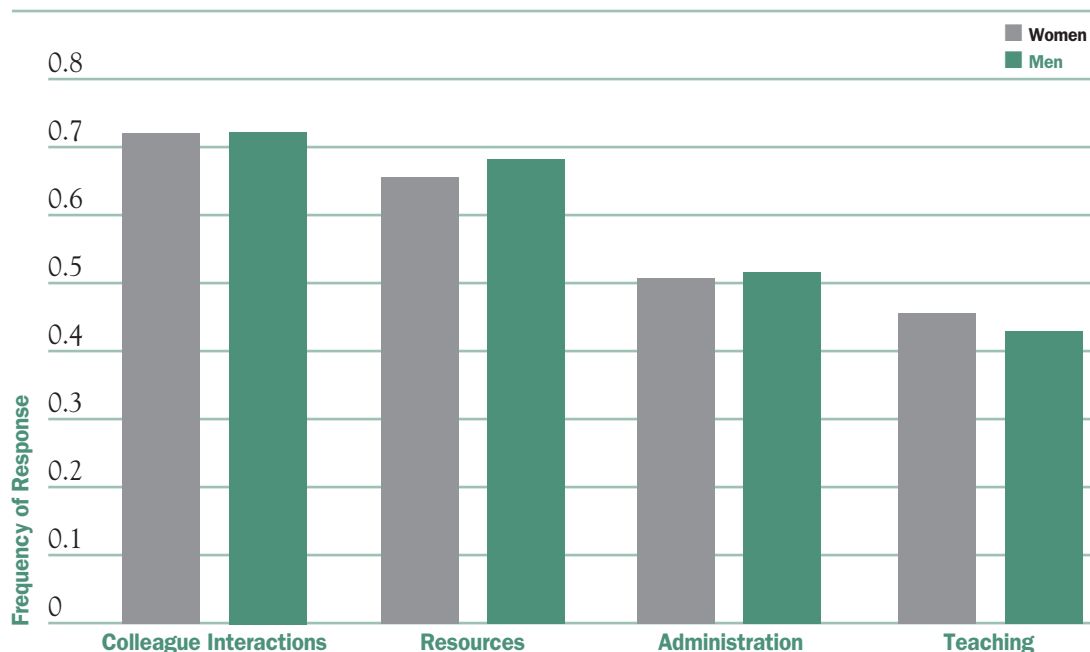
Entrenched beliefs influencing work practices are particularly hard to change because the possibility of change challenges the importance of work in people’s lives. Systematic

change requires a collective opportunity to reflect on work practices, to discern and discuss the intended and unintended consequences of the status quo, and to develop a shared desire to change.

A split jet stream

As Howard Altman recently noted (2004, 50), “even the best faculty development programs tend to ignore job satisfaction and focus exclusively on job effectiveness. Both are important.” There is a pressing need within academia to learn more about faculty satisfaction with their jobs and with their work environments. In the late nineties, the Massachusetts Institute of Technology (MIT) undertook a comprehensive survey of the women faculty in its school of science in order to gain insights into their job satisfaction (Committee on Women Faculty 1999). In 2002 and 2003, we conducted a similar survey at Utah State University (USU). On

Figure 1 Sources of Success and Satisfaction



Utah State
University

our campus, we chose to focus on the SET colleges because the warming toward women faculty appears to be the slowest there.

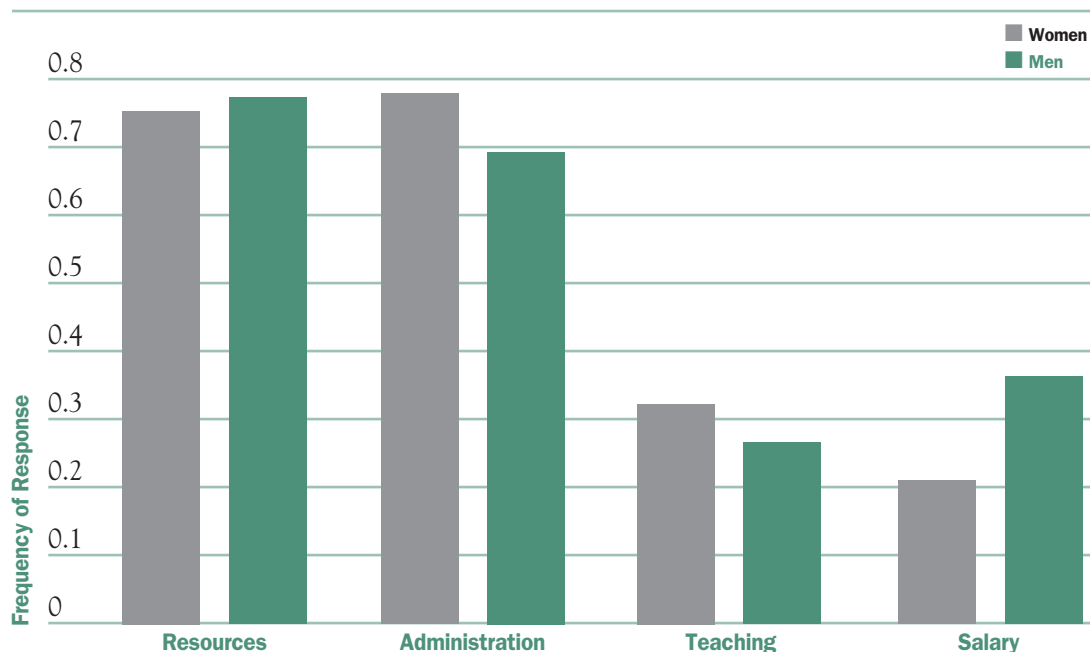
We interviewed forty-two current and former women faculty members in our SET colleges (Agriculture, Engineering, Natural Resources, and Science) about their job satisfaction. In order to discover whether the attitudes of the men differed from those of the women, we followed up with interviews of a matched set of forty current male faculty members from the same SET colleges. We asked each faculty member three questions: What factors at USU contributed to your career success and job satisfaction? What factors at USU were obstacles to success or sources of job dissatisfaction? What changes would you like to see at USU to improve the recruitment and retention of faculty? Our findings allow for a comparison between male and female faculty members regarding their sources of job satisfaction, dissatisfaction, and obstacles to success.¹

We found no significant differences between men and women faculty in sources of career success and job satisfaction at USU (see figure 1). As listed by our respondents, the top four sources of success and satisfaction were positive interactions with colleagues, access to campus resources, support of administrators, and positive teaching experiences. The responses of



men and women faculty were also similar for many of the categories of obstacles to career success and job satisfaction (see figure 2). The most frequently reported obstacles that were the same for men and women were lack of

Figure 2 Obstacles to Success and Sources of Dissatisfaction



resources on campus, negative interactions with administrators, negative teaching experiences, and low salary.

There were, however, significant gender differences in four categories of obstacles to success and sources of dissatisfaction (see figure 3). Women faculty members were more likely to report negative interactions with colleagues; negative experiences with the process of evaluation, promotion, and tenure; difficulty balancing work and family life; and overwhelming workloads. These factors are interrelated in that women faculty typically advise more students and serve on more committees; neither of these activities is valued highly for promotion and tenure. Women faculty reported being left out of collaborations and informal networks and receiving little mentoring; all of these factors may negatively impact promotion and tenure as well.

We found that, while untenured women are generally more satisfied with their academic careers, tenured women in the SET fields are more discouraged. The findings from Utah State University parallel the results found in studies done at both MIT and Princeton (Committee on Women Faculty 1999; Lawler 2003). Overall, these data suggest the pervasiveness of the

**Our vision
for the future is of
a university where all
faculty members,
regardless of their
gender or ethnicity,
succeed to their
fullest potential**

problem; substantially different types of universities are finding similar sources of dissatisfaction among their women faculty in the sciences and engineering.

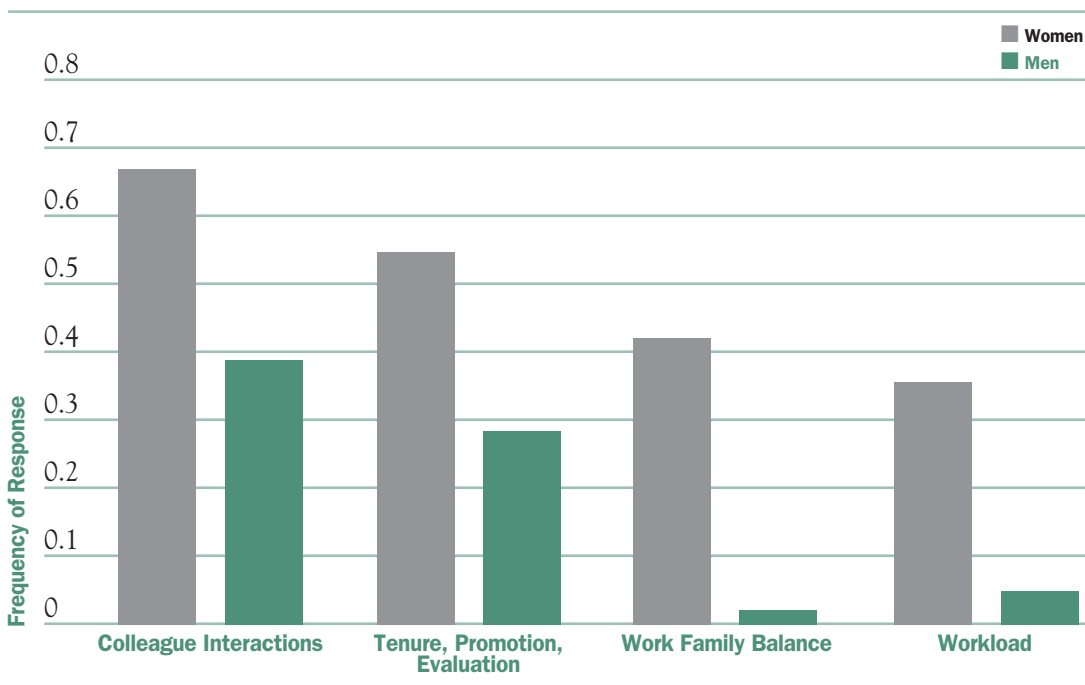
What's in the forecast?

Can anything be done about this chilly climate phenomenon? To answer this question,

the National Science Foundation created the NSF-ADVANCE program. The goal of the program is “to increase the participation of women in the scientific and engineering workforce through the increased representation and advancement of women in academic science and engineering careers” (see www.nsf.gov/home/crssprgm/advance). Utah State University is one of the nineteen schools that have received NSF-ADVANCE Institutional Transformation Awards for developing plans to pursue new organizational strategies to make access by women faculty to senior and leadership roles a priority.

Conducting the job satisfaction surveys discussed above was the Utah State ADVANCE team's first attempt to more clearly define the problem on our campus. We learned from these interviews that the women on our campus—a large, public, land-grant university in the rural

Figure 3 Gender Differences in Obstacles to Success and Sources of Dissatisfaction



West—face very similar problems to women on other campuses, such as MIT and Princeton—large, private universities in the urban East—as well as globally (e.g., women scientists in the European Union). We also learned that the experiences of men and women differ significantly with regard to their job satisfaction, with women experiencing a great deal more difficulty than men in balancing their work lives and their personal lives. Our initial research goes a long way toward defining the chilly climate problem.

Nothing but blue skies

We know from organizational change research that change is always incremental, often with three steps forward and two steps back. As Leo Higdon points out (2003, 68), we need to “learn new and better ways” to manage change while “preserving the best of the tradition and culture on which our institutions are based.”

Our vision for the future is of a university where all faculty members, regardless of their gender or ethnicity, succeed to their fullest potential. Our overall goals for the ADVANCE-Utah State project are to

- transform departmental climates by using an organizational change model from the business arena called “Dual-Agenda” (Rapoport et al. 2002);

- transform university policies and procedures that are currently barriers for recruiting and retaining women;
- transform faculty support infrastructure, including the construction of a new on-campus child development center.

To accomplish these goals, we are working together with various groups on our campus, including the president and the provost, the vice president for research, the Office of Development, the Office of Sponsored Programs, the Office of Affirmative Action/Equal Opportunity, the Council of Academic Deans, Student Support Services, and the Tri-Council for Women and Gender Programs.

Warming things up on your campus

Based on our research, the following recommendations may help to improve the climate for women on your campus.

Recognize the “local” weather phenomenon.

What happens in departments is what really affects faculty the most directly (just like the weather: when the blizzard is headed toward your town, that’s when you really should pay attention). Identify departments that have poor climates. Provide support or training for department chairs so that they can address problems within their departments. Occasionally, outside intervention may be necessary. Increase



Utah State
University

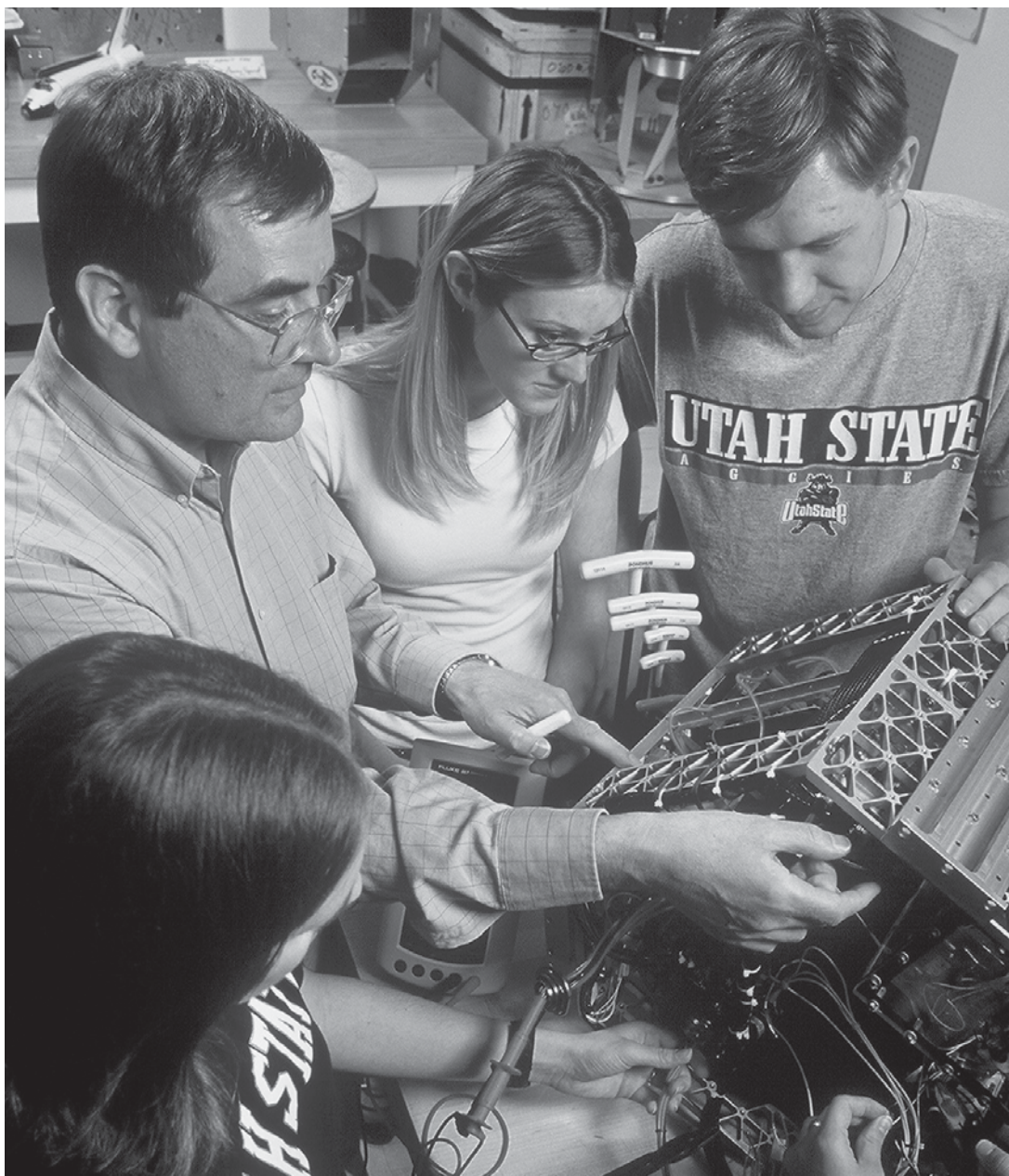
awareness of gender schemas for faculty serving on promotion and tenure committees and on faculty search committees.

Increase the transparency of processes. This is critical in breaking down the “us-versus-them” phenomenon wherein faculty see the administration as their enemy. When decision processes such as resource allocation or promotion are unclear or hidden, distrust increases. Trust can be regained by increasing transparency.

Make improvements in work-life issues. Work-life policies seem to be especially important for women, but male faculty members—particularly those who are untenured—have reported

struggling with issues such as child care as well. Policies that can improve work-life issues for faculty include paid maternity leave, on-site child care, tenure extensions and/or transitional support to maintain or restart research following major life events, and part-time or job-sharing options for tenure-track faculty.

Evaluate committee appointments. Feeling overloaded with work and committee assignments is a common source of dissatisfaction for women faculty. Committee appointments often disproportionately affect women. Avoid the token-woman syndrome of having a woman on every committee and neglecting to notice that



Utah State
University

some women—especially those from under-represented fields—are overutilized and that their careers are being adversely affected. Consider using a spreadsheet that shows all committee appointments to see which faculty members are already serving more than they should.

Create and publicize dual-career policies. Of those universities that have policies to assist dual-career couples with placement, only a minority post the information on their Web sites so that it can easily be found by those looking for positions. Having such policies in place and making this information readily available will improve placement in academia of women faculty with PhD/scientist partners.

Improve research collaborations. Women at MIT and Utah State both reported feeling isolated and pointed to the challenges of finding colleagues to work with on research projects. Furthermore, our data suggest that women do not realize that resources are obtained in many cases through networking with colleagues. Efforts to emphasize teamwork and to create opportunities for collaboration on research can improve the job satisfaction as well as the productivity of faculty.

Is there a global warming toward women in academia?

Unfortunately, not much warming has occurred in those regions of campus where women are still underrepresented. Retaining more women in academic science, engineering, and technology careers is critical if the United States is to reduce its reliance on foreign-born scientists. It is also critical for the development of a technology-based economy. One of the major obstacles to increasing the proportion of women in the scientific workforce is the lack of role models in colleges and universities where most scientific training occurs. According to the NSF's biannual survey of the scientific and engineering workforce, the proportion of women full professors in science and engineering fields has not increased in twenty years. This lack of senior women faculty is often attributed to the "chilly climate" for women scientists and engineers on college campuses across the country.

Utah State University is one of several major institutions currently conducting climate surveys and revising policies that are inadvertently biased against women faculty. As the president of MIT has pointed out (Committee

on Women Faculty 1999), however, that's the easy part. The hard part is changing departmental climates. Many institutions and national organizations, including Utah State, also are searching for successful models of organizational change in an attempt to warm up the weather, particularly for women scientists and engineers who, all too often, are left out in the cold. □

To respond to this article, e-mail liberaled@aacu.org, with the authors' names on the subject line.

REFERENCES

- Altman, H. B. 2004. A baker's dozen: Dirty lessons I have learned in an academic career. *Change* 36 (4): 50–53.
- Committee on Women Faculty in the School of Science at MIT. 1999. A study of the status of women faculty in science at MIT. *The MIT Faculty Newsletter* 11 (4): 1–17.
- Dwandre, N. 2002. European strategies for promoting women in science. *Science* 295, January 11, 278–79.
- Etzkowitz, H., C. Kemelgor, and B. Uzzi. 2000. *Athena unbound: The advancement of women in science and technology*. London: Cambridge University Press.
- Higdon, L. I., Jr. 2003. Change from within: The challenge of shaping the institutional culture. *Liberal Education* 89 (1): 64–68.
- Kanter, R. M. 1977. *Men and women of the corporation*. New York: Basic Books.
- Lawler, A. 2003. Princeton study strikes sad but familiar chord. *Science* 302, October 3, 33.
- National Science Foundation Report #00-327. www.nsf.gov.
- Rapoport, R., L. Bailyn, J. K. Fletcher, and B. H. Pruitt. 2002. *Beyond work family balance: Advancing gender equity and workplace performance*. San Francisco: Jossey-Bass.
- Trower, C. A. 2001. Women in the academy: Largely without tenure. *Science*, September 14. <http://nextwave.sciencemag.org/cgi/content/full/2001/09/12/3>.
- Valian, V. 1998. *Why so slow? The advancement of women*. Cambridge, MA: MIT Press.

NOTE

1. Data from this survey are also summarized in the *Academic Leader* newsletter for academic deans and department chairs (April 2005, Volume 21, Number 4).